

ON SOME TERTIARY SAWFLIES
(HYMENOPTERA, SYMPHYTA) FROM COLORADO

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Through the kindness of Professor F. M. Carpenter (Harvard University, Cambridge, Massachusetts) we have managed to locate some Tertiary sawflies originally described by Professor C. T. Brues, Professor T. D. A. Cockerell, and Dr. S. A. Rohwer. Since the original descriptions and illustrations of the fossils are no longer adequate for present needs, we have revised the descriptions, provided new illustrations, and revised the taxonomic positions of the species. The drawings have been made by A. Rasnitsyn and most of the determinations by A. Zhelochovtzev.

We are indebted to Professor Carpenter for his help in locating this material and for providing us with photographs of those specimens which could not be loaned.

Family Xyelidae

Megaxyela petrefacta Brues

Figure 1

Megaxyela petraefacta Brues, 1908: 271. fig. 10 .

The distal position of the fork of SC, the straight lower margin of 1mcu cell and the large size of the insect confirm the membership of this species in *Megaxyela* Ashmead. The species apparently differs from all Recent species of the genus by the narrower ovipositor, which is similar to that of *Macroxyela* Kirby.

Material examined: Holotype No. 2049 (Museum of Comparative Zoology, Harvard University), Oligocene of Florissant, Colorado.

Family Blasticotomidae

Runaria ostenta (Brues) comb. nov.

Figure 2

Paremphtus ostentus: Brues, 1908: 265, fig. 6; Benson, 1942: 47.

The completely reduced 4th antennal segment, the distal position of 2m-cu crossvein, and the short ovipositor allow us to include this species in the genus *Runaria* Malaise. It differs from Recent species by the enlargement of the head behind the eyes.

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Material examined: Holotype No. 2042 (Museum of Comparative Zoology, Harvard University), Oligocene of Florissant, Colorado.

Family Argidae

Sterictiphora konowi (Rohwer)

Figure 3

Schizocerus konowi: Rohwer, 1908b: 591.

The venation of this species is very similar to that of *Sterictophora* Billberg; however, it differs in that C is not dilated towards the top and by having a long and narrow praescutum bordered by broad furrows, with close transverse ribs inside them.

Material examined: Holotype No. 4156 (Natural History Museum of Colorado, Boulder, Colorado), Oligocene of Florissant, Colorado.

Family Cimbicidae

Eopachylostictia byrami (Cockerell)

Figure 4

Amasis byrami: Cockerell, 1925: 10, pl. 2, fig. 5.

Eopachylostictia byrami: Malaise, 1945: 14.

Genus *Eopachylostictia* was established by Malaise (1945) for *Amasis byrami* Cockerell mainly on the basis of the small photograph in Cockerell's paper of 1925. A larger and clearer photograph received from Professor Carpenter confirms Malaise's interpretation of the features of this fossil insect.

Material studied: Photograph of Holotype No. 69181 (United States National Museum, Washington), Eocene of Green River Shales, Colorado.

Family Tenthredinidae

Athalia (?) *wheeleri* (Cockerell), comb. nov.

Figure 5

Eriocampa wheeleri: Cockerell, 1906: 500, fig. 2.

The venation is similar to that of *Athalia* Leach, but it differs profoundly by the strong C of the fore wing. Other Tenthredinidae with such a C (some Selandriinae, Nematinae, etc.) possess quite a different venation. The fossil differs sharply from *Eriocampa* Hartig by its venation (especially in the region of the base of RS+M) and by the smooth thoracic sclerites. However, too many features are indiscernable in the photograph (and probably in the holotype) to place this fossil in *Athalia* with confidence.



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Figure 2. *Runaria ostenta* (Brues) (holotype). (Scale line, 5 mm).

Figure 3. *Sterictiphora konowi* (Rohwer) (holotype). (Scale line, 5 mm).

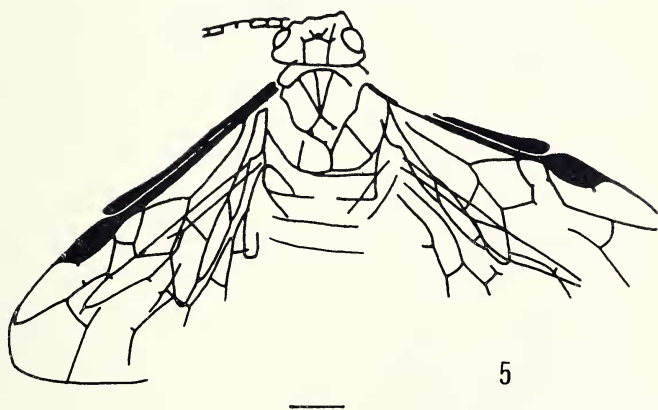
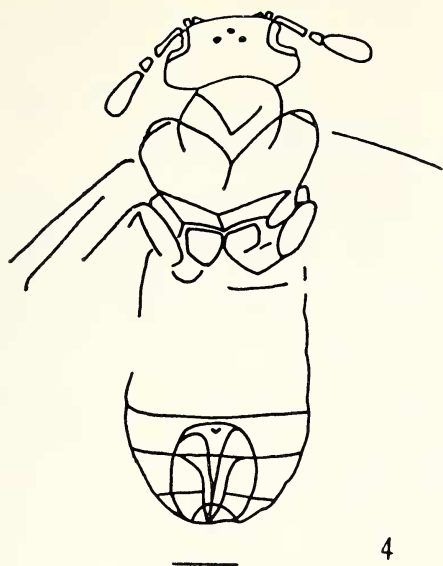


Figure 4. *Eopachylostictia byrami* (Cockerell) (holotype). (Scale line, 1 mm).

Figure 5. *Athalia* (?) *wheeleri* (Cockerell) (holotype). (Scale line, 1 mm).

Material examined: Photograph of Holotype No. 1881 (American Museum of Natural History, New York), Oligocene of Florissant, Colorado.

Fenusa parva (Brues), comb. nov.

Figures 6 & 7

Lithoryssus parvus: Brues, 1906: 492, fig. 1; 1908: 272.

Originally this was placed by Brues in the family Orussidae, but all features are typical of Tenthredinidae and indeed of the genus *Fenusa* Leach (*sensu* Ross, 1951). The fossil differs from *Nefusa* Ross, which has a similar venation, by the nearly homonomous basal segments of the flagellum.

Material examined: Specimens No. 2051-2052 and 2054 (Museum of Comparative Zoology, Harvard University), determined as *Lithoryssus parvus* by Brues and noted by Brues (1908); Oligocene of Florissant, Colorado.

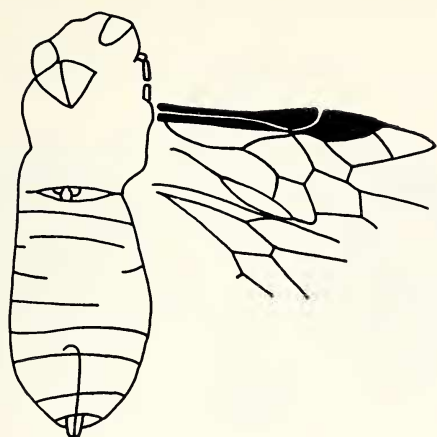
Florissantinus angulatus gen. nov., sp. nov.

Figure 8

C moderately swollen before pterostigma. SC in form of a cross-vein before the junction of R and M. R+M long (half the length of the cell 1mcu). Cell 2r+3r narrow, without cross-vein 2r-rs. RS between cells 1r and 2rm developed. Cross-veins 2r-m and 3r-m are not preserved; 1m-cu converged with first absciss of M to the front margin of the wing. 2m-cu sharply bent inward of cell 2mcu, probably not reaching M. Cross-vein cu-a a little distal of the middle of cell 1mcu. A1 and A2 fused for a little distance, both anal cells closed. In hind wings cells r, mcu and cua closed, rm perhaps opened. Cross-vein m-cu oblique. Ovipositor as long as mesonotum, ovipositor sheath seeming to form 5-angled-area, narrowed toward the end. Length of the body, 4.5mm; of the forewing, 4.3mm.

The completely reduced 2r-rs, converged M and 1m-cu, the oblique 2m-cu, which may reach M only basally of 2r-m, and the form of the anals indicate that this insect belongs to the tribe Nematini s. str. and that it is similar to *Hemichroa* Stephens, *Platycampus* Schiödt and *Anoplonyx* Marlatt. However, the straight M, not bent at the junctions of 2r-m and 2m-cu, and the short distance between the anal cells separate it from these genera, a very oblique 2m-cu apparently from all the Tenthredinidae.

Material studied: Holotype No. 2053 (Museum of Comparative Zoology, Harvard University), Oligocene of Florissant, Colorado.



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Figure 6. *Fenusa parva* (Brues) (specimen No. 2051-2052). (Scale line, 2 mm).

Figure 7. *Fenusa parva* (Brues) (specimen No. 2054). (Scale line, 1 mm).

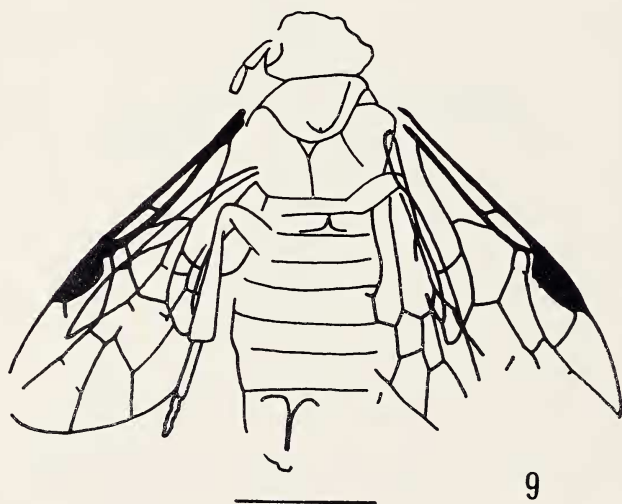
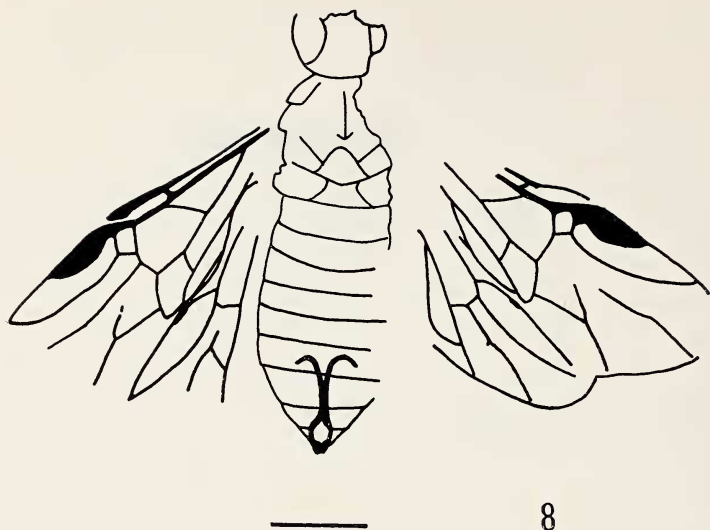


Figure 8. *Florissantinus angulatus* sp. nov. (holotype). (Scale line, 1 mm).

Figure 9. *Mesoneura* (?) *vexabilis* (Brues) (holotype). (Scale line, 3 mm).

This specimen was incorrectly determined by Brues as belonging to *Lithorvssus parvus* (1908: 272).

Mesoneura (?) *vexabilis* (Brues), comb. nov.

Figure 9

Scolioneura vexabilis: Brues, 1908: 262, fig. 4.

Lisconeura vexabilis: Rohwer, 1908a: 529 (Argidae, Schizocerinae).

Venation and form of antennae similar to those of *Mesoneura* Hartig. *M. vexabilis* differs from recent species of the genus mainly by the broader radial cell.

Material examined: Holotype No. 2039 (Museum of Comparative Zoology, Harvard University), Oligocene of Florissant, Colorado.

Eohemichroa gen. nov.

Figure 10

Type species — *Hemichroa eophila* Cockerell, 1906: Oligocene of Florissant, Colorado.

First segments of antenna are long and broad, nearly as broad as the first segment of hind tarsus. In fore-wing SC occurs before R + M, the latter is not shorter than the greatest breadth of cell 1r. Cross-veins 2r-rs, 2r-m and 3r-m, as well as RS between 1r and 2rm are present. 2r-m is situated far behind 2m-cu, 1m-cu is almost in the middle between the base of RS + M and 2m-cu. RS and M moderately diverging behind 2r-m, almost straight. Cell 1a is closed, the distance between it and 2a nearly equal to a half of the cell 1a length. First segment of hind tarsus long, a little shorter than half of the tibia.

Venation of the insect is very similar to that of *Hemichroa* Stephens, and differs only by the shorter distance between the anal cells. It also differs from *Hemichroa* by the stout antenna, the long first segment of the hind tarsus and the more slender body.

Material examined: photograph of Holotype No. 18919 of *Hemichroa eophila* Cockerell (American Museum of Natural History, New York), Oligocene of Florissant, Colorado.

Family Pamphiliidae

Acantholyda (?) *caplani* (Cockerell), comb. nov.

Figures 11 and 12

Cephaleia caplani: Cockerell, 1933: 186, fig. 1.

This insect differs from all recent Pamphiliidae by the long cells 1r and 1mcu (both less than twice as long as their widths). It also

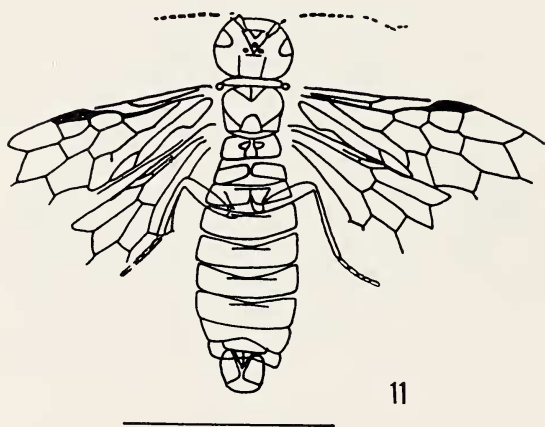


Figure 10. *Eohemichroa eophila* (Cockerell) (holotype). (Scale line, 3 mm).

Figure 11. *Acantholyda* (?) *caplani* (Cockerell), (combined drawing from specimens No. 6307-6310). (Scale line, 10 mm).

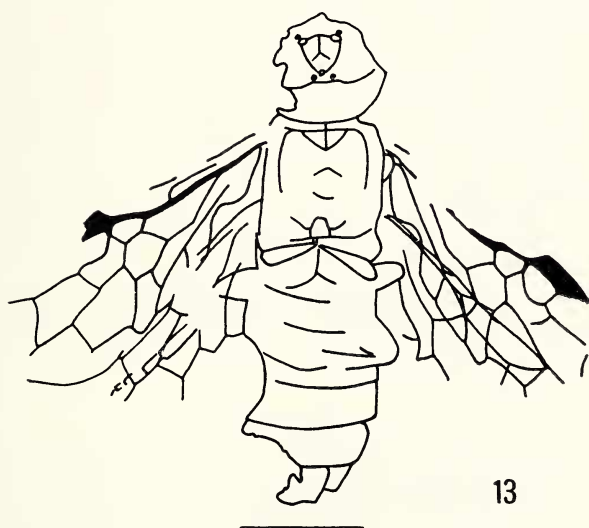
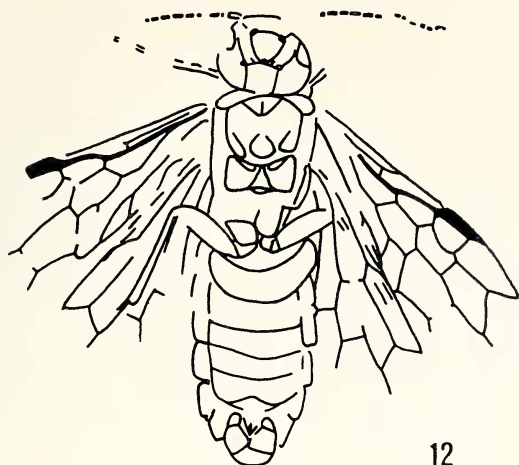


Figure 12. *Acantholyda* (?) *caplani* (Cockerell) (holotype). (Scale line, 3 mm).

Figure 13. *Neurotoma cockerelli* (Rowher) (holotype). (Scale line, 3 mm).

differs from *Neurotoma* Konow by the narrow pterostigma, the more developed fore-branch of SC and the slender femora; it differs from *Pamphilius* Latreille by the post-ocellar area, which is enlarged forward, by the slender femora and the impressed area at the end of the last sternite of the female; it differs from *Caenolyda* Konow mainly by the short fore branch of SC. It is more similar to *Acantholyda* A. Costa and *Cephalcia* Panzer but it cannot be included in any of these genera with confidence since the main diagnostic features are indiscernible in the fossils. The small flagella segments (smaller than the scape) of the fossil are more like those of *Acantholyda*; we therefore place it provisionally in this genus.

Figure 11 is based on specimens numbered 6307-6310; figure 12 is based on the photograph of the holotype (made by F. M. Carpenter); in some details these two are not identical but the differences may be related to defects of preservation.

Material examined: photograph of Holotype No. 18626 (Museum of University of Colorado, Boulder, Colorado), and specimens numbered 6307-6310 (Museum of Comparative Zoology, Harvard University); Oligocene of Creede, Colorado.

Neurotoma cockerelli Rohwer

Figure 13

Neurotoma cockerelli: Rohwer, 1908a: 523.

The reduced fore branch of SC, the broad pterostigma and the stout femora confirm the membership of this species in *Neurotoma* Konow. It differs from recent species by the occurrence of fore branches of the Y-shaped suture of the head.

Material studied: photograph of Holotype No. 18869 (American Museum of Natural History, New York), Oligocene of Florissant, Colorado.

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